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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#15/jm  
01-15-03

Applicant: Eric Thomas Gohr et al. )  
Serial No.: 09/749,645 ) Group Art Unit: 1714  
Filed: December 27, 2000 )  
For: METHOD FOR REDUCING HAZE IN A )  
FIRE RESISTANT POLYCARBONATE )  
COMPOSITION )  
Examiner: Szekely, Peter A.

**DECLARATION PURSUANT TO 37 C.F.R. § 1.132**

**Assistant Commissioner for Patents  
Washington, D.C. 20231**

Sir.

I, Rajendra K. Singh declare and state:-

1. My educational background includes a B.S. in Chemistry from Bombay University, India, Masters of Science in Organic Polymer Chemistry from Virginia Commonwealth University and a Ph.D. in Organic Polymer Chemistry from the University of Missouri-Rolla in Organic Polymer Chemistry.
  2. I have been employed by the General Electric Company since October 1998, where I am currently a Product Engineer in the Lexan Technology Group at General Electric Plastics in Mount Vernon, Indiana.
  3. I am an inventor or co-inventor on at least 2 U.S. patents assigned to the General Electric Company relating to plastic compositions, methods, and articles.

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4. I am an inventor of the invention claimed in the above-identified application.

5. I designed and supervised the preparation and testing of six compositions, which are shown in Table 1 and four additional compositions shown in Table 2. The compositions shown in Table 1 comprise polycarbonate resin, a flame retardant salt i.e., potassium salt of perfluorobutane sulfonate (KPFBS) and a cyclic siloxane as shown in Table 1. The compositions shown in Table 2 contain only polycarbonate resin and the flame retardant KPFBS. All the additives to the polycarbonate resin in Tables 1 and 2 are measured in parts per hundred (phr).

6. Five samples of each composition were prepared and tested according to the procedures described in the above-identified application. Samples were tested for Notched Izod impact strength as per ASTM D 256. The results of the tests have been averaged and are reported in Table 1 and Table 2.

Table 1

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
KPFBS (phr)	0.05	0.05	0.1	0.1	0.05	—
Siloxane (phr)	0.1	0.2	—	0.2	0.1	0.1
Notched Izod (ft-lb/inch)	15.694	15.873	15.427	15.492	15.578	15.419
Standard Deviation	1.141	0.646	0.705	1.301	0.558	0.992

7. As can be seen in Table 1, there is no observable trend in the impact strength, with either the mere presence or an increase in the amount of cyclic siloxane. For example, Samples 1, 2 and 5, all possess 0.05 phr of the flame retardant salt, while

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Samples 1 and 5 possess cyclic siloxane in an amount of 0.1 phr, and Sample 2 possesses the cyclic siloxane in an amount of 0.2 phr respectively. The impact strength increases only slightly from approximately 15.69 and 15.57 ft-lbs/inch for Samples 1 and 5 respectively to 15.87 ft-lbs/inch for Sample 2, which is within the limits of statistical variation when the standard deviations shown in Table 1 is taken into account. Similarly, Sample 3, which contains only 0.1 phr of the flame retardant salt may be compared with Sample 4 (which contains 0.1 phr of the flame retardant salt and 0.2 phr of the cyclic siloxane) and Sample 6, which contains 0.1 phr of the cyclic siloxane. From the impact strength results it can be seen that there is practically no variation in the impact strength results for Samples 3, 4 or 6. All the impact strength results are within the limits of statistical variation. This clearly shows that the addition of the flame retardant salt does not degrade impact strength in as much as the cyclic siloxane does not improve impact strength as claimed by the Examiner.

Table 2

	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11
KPFBS (phr)	0.0	0.05	0.08	0.09	0.1
Notched Izod (ft-lb/inch)	15.060	15.093	13.674	15.48	16.13
Standard Deviation	0.441	0.677	0.629	1.027	0.976

8. The experiments shown in Table 2, were further conducted to prove that the addition of only the flame retardant salt to the polycarbonate resin does not in any way alter the impact properties of the polycarbonate resin. From the table it may be seen that increasing the quantity of the flame retardant salt from 0.0 to 0.1 phr does not reduce

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the impact properties of the polycarbonate resin. Sample 7, which does not contain any flame retardant salt has an impact strength of 15.060 ft-lbs/inch. Sample 9 does show slightly lower results, but this may be considered an outlier, since all the other samples have impact strength above 15 ft-lbs/inch. Thus, once again it can be clearly seen that the addition of the flame retardant salt to the polycarbonate resin does not degrade the impact strength and therefore the cyclic siloxane does not have to be added to improve the impact properties of the polycarbonate resin as maintained by the Examiner.

9. I further declare that all statements and representations made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and representations were made with the knowledge that willful false statements and the like, so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

Dec 31 02  
Dated

Rajendra K Singh  
Rajendra K Singh, Ph.D.

Dec-23-2002 04:51pm From Woolcott

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## 1. Name of conveying party(ies):

Niles Rosequist  
Rajendra K. Singh  
Jeffrey H. Wengrovius

Additional name(s) of conveying party(ies) attached?  Yes  No

## 2. Name and address of receiving party:

Name: General Electric Company

Address: One Plastics Avenue  
Pittsfield, MA 01201Additional name(s) & address(es) attached?  Yes  No

## 3. Nature of conveyance:

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## Type of Submission:

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## 4. Application number(s) or patent number(s): 09/560,770

If this document is being filed together with a new application, the execution date of the application is \_\_\_\_\_

## A. Patent or PCT Application No.(s)

## B. Patent No.(s)

Additional numbers attached?  Yes  No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

Name: OPPDAHL &amp; LARSON LLP

Address: P.O. Box 5068

City: Dillon, State: CO Zip: 80435

## 6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41): \$ 40.00  
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## 8. Deposit account number: 070862

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## 9. Statement and signature

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Marina T. Larson

Name of Person Signing

07-17-00

Signature

Date

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ASSIGNMENT

In consideration of One Dollar and other good and valuable consideration, of which we acknowledge receipt, we, NILES R. ROSENQUIST, RAJENDRA K. SINGH AND JEFFREY H. WENGROVIUS sell and assign to General Electric Company, a New York Corporation, its successors and assigns the entire right, title and interest in and to the improvements in Fire-Retarded Polycarbonate Resin Composition invented by me, as described in the application for United States Patent Serial No. 09/560770, filed on April 28, 2000, and any and all applications for patent and patents therefor in any and all countries, including all divisions, reissues, continuations and extensions thereof, and all rights of priority resulting from the filing of said United States application, and authorize and request any official whose duty it is to issue patents, to issue any patent on said improvements or resulting therefrom to said General Electric Company, or its successors or assigns and agree that on request and without further consideration, but at the expense of said Company, we will communicate to said Company or its representatives or nominees any facts known to us respecting said improvements and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing and reissue applications, make all rightful oaths and generally do everything possible to aid said Company, its successors, assigns, and nominees to obtain and enforce proper patent protection for said improvements in all countries.

May 16, 2000  
Date

Niles R. Rosenquist  
Niles R. Rosenquist

May 16, 2000  
Date

Neomi H. Schneck  
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May 16, 2000  
Date

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DOUGY COUNTY  
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May 16, 2000  
Date

Rajendra K. Singh  
Rajendra K. Singh

May 16, 2000  
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Jeffrey H. Wengrovin  
S. May 31, 2000

Donna M. O'Elisius

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Commission Expires September 23, 2000

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